

# Material: ASTM A 29 1045

## Standard Specification for Hot And Cold-Finished Carbon and Alloy Steel Bars

**Group:** Ferrous Mild Steel Alloys

**Sub Group:** ASTM A 29 1045 Hot And Cold-Finished Carbon and Alloy Steel Bars

**Application:** Intended for Valve, Pump, General Engineering, Automotive and Other Industries

**Grade Belongs to the Industry:** Bar, Wire, Tube and Forging

| Chemical Composition |      |                |
|----------------------|------|----------------|
| Carbon               | C %  | 0.430 - 0.500  |
| Manganese            | Mn % | 0.600 - 0.900  |
| Phosphorus           | P %  | 0.040 max.     |
| Sulphur              | S %  | 0.050 max.     |
| Copper               | Cu % | 0.200 min.     |
| Aluminium            | Al % | 0.020 max.     |
| Boron                | B %  | 0.0005 - 0.003 |
| Niobium              | Nb % | 0.015 max.     |
| Vanadium             | V %  | 0.020 max.     |
| Iron                 | Fe % | Balance        |
| -                    | -    | -              |
| -                    | -    | -              |
| -                    | -    | -              |
| -                    | -    | -              |
| -                    | -    | -              |

| Heat Treatment  |
|---|
| As- Cast or Normalizing or Annealing or Hardening + Tempering |

| Mechanical Properties   |           |
|-------------------------|-----------|
| Tensile Strength in Mpa | 570 - 862 |
| Yield Strength in Mpa   | 310 min.  |
| Elongation in %         | 10 min.   |
| Reduction of Area in %  | 35 - 45   |
| Hardness in HB          | 163 - 321 |
| Impact in Joule         | -         |

| Cross Reference Table |          |           |                              |
|-----------------------|----------|-----------|------------------------------|
| Material              | Standard | Country   | Grade Belong to the Industry |
| A915 Grade SC 1045    | ASTM     | USA       | Casting                      |
| J04502                | UNS      | USA       | Bar, Wire, Tube and Forging  |
| 1045                  | AISI     | USA       | Bar, Wire, Tube and Forging  |
| 1045                  | AS       | Australia | Bar, Wire, Tube and Forging  |
| 1045                  | SAE      | USA       | Bar, Wire, Tube and Forging  |
| A 108 1045            | ASTM     | USA       | Bar, Wire, Tube and Forging  |
| 1045                  | ASTM     | USA       | Bar, Wire, Tube and Forging  |

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